

## CFFS POLYUREA-1 HD™ ALIPHATIC POLYUREA

### Product Description

CFFS Polyurea-1 HD is a single component, 90% solids, VOC Compliant, Aliphatic Polyurea that was developed for high gloss UV-stable floor topcoats, chemical resistance, and corrosion control. This coating provides reliable performance in a wide range of temperatures and climate conditions. Polyurea-1 HD has excellent resistance to UV rays, abrasion, and many of today's harshest chemicals.

### Product Features

- ❖ Displays excellent adhesion characteristics to a variety of substrates / coatings.
- ❖ Unlimited pot life increases the workability of the coating, providing consistent aggregate broadcasts and uniform topcoat applications.
- ❖ Will provide a glossy smooth finish when cured.
- ❖ Coating displays excellent chemical and abrasion resistance.
- ❖ Emits virtually no odors and can be applied indoors with minimal disturbance to surrounding activities.
- ❖ VOC FREE
- ❖ 100% UV-Stable Aliphatic Chemistry
- ❖ Versatile, crystal clear topcoat for use on both horizontal and vertical applications.
- ❖ Can be used for immersion and non-immersion service.
- ❖ Single component means no possible mixing errors, thus eliminating the human error factor.
- ❖ Extended cure time delivers great self-leveling properties and glass-smooth finishes.

### Primary Applications

- ❖ Heavy traffic areas
- ❖ Aircraft hangar floors
- ❖ Maintenance facilities
- ❖ Offshore platforms
- ❖ Industrial shop floors
- ❖ Commercial kitchens
- ❖ Bathrooms and Lavatories
- ❖ Chemical manufacturing plants
- ❖ Wastewater treatment applications
- ❖ Bar, table and countertop sealer

### Packaging

Product is sold CLEAR. Contact CFFS for available colors and mixing ratios. Available in 2 gallon and 5 gallon pails.

### Typical Physical Properties

Tensile Strength	ASTM D412	5,500
Compressive Strength (psi Mpa)	ASTM D695	12,000
Elongation	ASTM D412	75
Tear Strength (PLI)	ASTM 2240	800
Hardness, Shore D	ASTM D2240	80
Flexibility, 1/8" Mandrel	ASTM D1737	Pass
Falling Sand Abrasion Resistance	ASTM D968	30
	<small>*Liters sand / 1 dry mil</small>	
Abrasion Resistance	ASTM D4060	
CS-17 Wheel (1,000 gm Load)	12 mg Loss / 500 cycles	
Gloss	ASTM D-523	91+
Permeability	.038 WVT	

### Typical Processing Properties

Single Component - 72°F (24°C)	Tack Free-1-2 hours
Relative Humidity - 54%	Hard dry-3-6 hours
	Recoat Minimum-4 hours
	Recoat Maximum - 12 hours

Coverage: 1,600 square feet, per gallon, per mil.

Recommended Coverage

Topcoat Over Full Chip	150-250 sf/gal	@8.0 mils DFT
Topcoat Over Solid Color	400-700 sf/gal	@3.2 mils DFT
Topcoat Over Quartz	125-200 sf/gal	@8.3 mils DFT

VOC compliant in all 50 states and Canada

### Adhesion Results

ASTM D-4541 Elcometer

Concrete-no primer	concrete failure	>500psi
Concrete-primer	concrete failure	>550psi
Steel- primer	shear failure	>2000psi
Wood-no primer	wood failure/shear	>400psi

### Temperature

40°F - 100°F (4°C - 38°C)

Optimal installation temperature is 65°F -80°F (18°C -27°C).

Extreme cold applications may slow the cure time.

## Surface Preparation

---

### Concrete

**Old concrete** - Sandblasting, shot blasting, diamond grinder w/30 grit or coarser, or water blasting is highly recommended to remove surface contaminants. Any oils or fats must be removed prior to product application. Do not apply to wet substrates. Chloride, moisture and pH levels should be checked prior to application.

**New Concrete** - The concrete should be allowed to cure for a minimum of 30 days unless using CFFS Ultra-Hydro Stop Primer. Shot-blasting, sand blasting, diamond grinder w/30 grit or coarser or acid etching is required to remove the surface laitance that appeared during the curing process. A primer can be used to reduce out gassing and promote adhesion.

### Aluminum, Galvanized Steel, Non-Ferrous Metals

All metals must be prepared to a near white surface that is equivalent to SSPC 10 or NACE 2. For immersion service, a 3 mil blast profile is recommended. A 2 mil profile is generally accepted. CFFS Poly100-SC Primer/Basecoat must be the primer used prior to applying CFFS Polyurea-I HD.

### Fiberglass

The gel coat must be abraded to allow a mechanical bond of the coating. Sanding using 40-60 grit sandpaper is generally acceptable. Remove all latent dust and clean the surface to be coated using a solvent such as MEK. CFFS Poly100-SC Primer/Basecoat should be used as the adhesive primer prior to applying Polyurea-I HD.

### Wood

Sand entire surface to remove any burs or rough spots that may affect the finish of the coatings. Make sure all nail/screw holes and joints are detailed using either RSP Fast Patch or CFFS Fortification Formula prior to coating. Cotton mesh may be used to help bridge joints in moving substrates. In this case it will be embedded in Polyurea-350 while the coating is still tacky. Additional coats of Polyurea-350 may be necessary to provide build and hiding power prior to other coatings. Poly100-SC is not suggested for use as a high build primer over wood substrates.

### Existing Coatings

Cured coatings (beyond their re-coat windows) must be abraded via scuff sanding with 80-120 grit sandpaper prior to the application of CFFS Polyurea-I HD. Wipe surface clean with a tack rag or similar after a thorough vacuuming to perform a final cleaning. **DO NOT USE SOLVENTS TO CLEAN THE FLOOR.**

### Substrate Repairs

All spalls and cracks should be chased out and repaired to ICRI standards using CFFS-Fortification Formula. Expansion joints should be honored. Horizontal saw-cut control joints can be filled with CFFS Polyflex-93. Contact CFFS for recommendations and available colors and finishes.

## Primer Requirements

---

Please consult your product supplier for job specific recommendations. In most cases the acceptable primers will be CFFS Polyurea-350, CFFS Poly100-SC, CFFS Polyurea-I HD, CFFS Ultra-Hydro Stop or CFFS Level-Hard.

## Installation Recommendations

---

Surfaces should be free of loose particles, rust, voids, and spalls. It is recommended that this product be applied multi-directional (north, south, east and west) to ensure proper coating thickness. **ALWAYS FOLLOW THE DEW POINT CHART AND APPLY ACCORDINGLY. DO NOT APPLY IN DIRECT SUNLIGHT OR WHEN TEMPERATURES ARE STEADILY RISING. THIN MATERIAL WITH UP TO 15% MEK FOR TOPCOAT USE OVER 80°F (27°C)**

## Application Information

---

### Mixing

Material should be pre-conditioned to a minimum of 50°F (10°C) prior to use. The material temperature must be brought to 5°F above the dew point temperature before opening and agitating the material to prevent condensation from entering the coating. Thoroughly mix the single component material using a paddle mixer and a drill for a minimum of 2 minutes to place the solids content evenly in suspension. This should be done prior to every use. CFFS recommends pouring small amounts (1-2 gallons) into application containers to limit the amount of moisture introduced into the coating before being applied to the floor. Any unused material may be placed back in a separate, sealed storage container for future use. **DO NOT POUR UNUSED MATERIAL BACK INTO THE ORIGINAL SHIPPING CONTAINER AS IT COULD CONTAMINATE THE ENTIRE BATCH.** Seal all containers immediately after pouring out desired quantities. It is important to limit the time the container is open. Mix and pour out only what is needed. At the end of the day apply a solvent "float" of approximately 5 ounces of MEK over the surface of the coating before resealing the container.

### Roller

Use only phenolic core, solvent resistant, natural or synthetic fiber roller covers. ¼" to 3/8" nap are acceptable, thicker nap may cause bubbling of the coating.

### Brush

Inexpensive natural fiber chip brushes are suggested - 2" to 4" width depending on the application. These will be one-time use items.

### Thinner

CFFS Polyurea-I HD can be thinned using MEK up to 15% by total volume if required. **DO NOT USE ANY OTHER KIND OF SOLVENT.**

### Clean Up

Use ACETONE or MEK to clean tools, etc. before product cures.

## Application Conditions

### Shelf Life and Storage

Twelve (12) months in factory delivered unopened buckets. Keep away from extreme heat, cold and moisture. Maintain at a proper storage temperature of 50-90° F. Keep out of direct sunlight and away from fire hazards.

### Repairs and Maintenance

Re-application of the product after 12 hours of initial application requires sanding and cleaning to achieve optimum adhesion. Contact CFFS for site specific recommendations.

## Compatible Coatings

### Primers

CFFS Poly100-SC	(Single Component Aromatic Polyurea)
CFFS Ultra-Hydro Stop	(Epoxy MVT Primer)
CFFS Polyurea-350	(Polyurea)
CFFS Level-Hard	(Epoxy Hybrid)

### Intermediates

CFFS PG-100	(Aliphatic Polyaspartic Polyurea)
CFFS Polyurea-350	(Polyurea)
CFFS Level-Hard	(Epoxy Hybrid)
CFFS Polyurea-I HD	(Single Component Aliphatic Polyurea)

### Clear Finish Topcoats

CFFS RG-80	(Aliphatic Polyaspartic Polyurea)
CFFS PG-100	(Aliphatic Polyaspartic Polyurea)
CFFS Polyurea-I HD	(Single Component Aliphatic Polyurea)

## LEED Credits

Most CFFS products contribute to LEED Credits. See our LEED Credit Bulletin for more information.

## Chemical Resistance

Acetic Acid 100%	RC	Methanol	R	Sugar/H2O	R
Acetone	R	Methylene Chloride	C	Sulfuric Acid 10%	R
Ammonium Hydroxide 50%	RC	Mineral Spirits	R	Sulfuric Acid >50%	R
Benzene	RC	Motor Oil	R	Toluene	R
Brake Fluid	R	MTBE	C	1,1,1-Trichlorethane	C
Brine saturated H2O	R	Muriatic Acid 10%	R	Trisodium Phosphate	R
Chlorinated H2O	R	NaCl/H2O 10%	R	Vinegar/H2O 5%	R
Diesel fuel	R	Nitric Acid 20%	RC	H2O 14 days at 82° C	R
Ethanol	R	Phosphoric Acid 10%	R	Xylene	R
Gasoline	R	Phosphoric Acid 50%	NR		
Gasoline/5% MTBE	R	Potassium Hydroxide 10%	R		
Gasoline/5% Methanol	R	Potassium Hydroxide 20%	R, Dis		
Hydrochloric Acid 20%	R	Propylene Carbonate	RC		
Hydrofluoric Acid 10%	RC	Skydral	RC		
Hydraulic fluid (oil)	R	Sodium Hydroxide 25%	R		
Isopropyl Alcohol	R	Sodium Hydroxide 50%	R, Dis		
Jet Fuel (JP-4)	R	Sodium Hypchlorite 10%	R		
Lactic Acid	RC	Sodium Bicarbonate	R		
MEK	R	Stearic Acid	R		

## Certifications

VOC Compliant in all 50 states, Canada, Australia and Various Countries in Europe (National Standards – IMC)  
USDA and FDA certified food safe for incidental food contact.

## Shipping Information

Flash Point:	47° C (117° F)
Weight/Gallon:	9.7 ±1.0 lbs.
DOT HAZARD CLASS	N / A
DOT PACKAGING GROUP	II
DOT LABEL	N / A
DOT SHIPPING NAME	Paint Related Material
DOT PLACARD	N / A
UN / NA NUMBER	1263

## Safety Precautions

**DANGER!!** Vapor and Atomized liquids are harmful. Overexposure may cause lung damage, allergic skin reactions, or respiratory reactions. Effects may be permanent, may affect the brain or nervous system causing dizziness, headaches, or nausea. Use only in well ventilated areas, wear approved respirators when necessary. Keep out of reach of children. See MSDS for First Aid recommendations.

## Warranty

The technical data and any other printed information furnished by CFFS are true and accurate to the best of our knowledge. CFFS POLYUREA-I HD™ conforms to in house quality control procedures and should be considered free of defects. The data provided is believed to be reliable and is offered solely for evaluation. The use of this product is beyond the control of the seller, therefore the buyer assumes all risks of use and handling whether done in a matter that is in accordance with the provided posted directions or not. CFFS makes no warranty; expressed or implied, of its products and shall not be liable for indirect or consequential damage in any event.

### Chemical Resistance Key

R=recommended/little or no visible damage  
RC=recommended conditional/some effect, swelling or discoloration  
C=Conditional/Cracking-wash within one hour of spillage to avoid affects  
NR=Not recommended  
Dis=Discolorative